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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/816,987	04/02/2004	Matthew S. Sprankle	157972-0009	2009

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BARCELO & HARRISON, LLP
22091 WOOD ISLAND LANE
HUNTINGTON BEACH, CA 92646

EXAMINER	
GARCIA, CARLOS E	

ART UNIT	PAPER NUMBER
2627	

MAIL DATE	DELIVERY MODE
11/27/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/816,987	SPRANKLE ET AL.	
	Examiner	Art Unit	
	Carlos E. Garcia	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 August 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-8 are rejected under 35 U.S.C. 102 (b) as being anticipated by Misso et al. (US 6,333,839).

Re claims 1 and 5: Misso et al. disclose an actuator arm assembly (110) for an information storage device (see Fig.2) comprising: an actuator arm (see Fig.2), an actuator pivot bearing (112) and a tolerance ring (128) retaining the actuator pivot bearing (112) relative to the actuator arm (as discussed previously) and where the tolerance ring (128) further comprises, a substantially cylindrical base portion (as shown in Figs.7; the cylindrical base portion is the sheet bent into a cylinder shape) having a first radius (see Fig.7 below), and a plurality of contacting portions (154), each having at least one central region (158) that reaches a second radius (see Fig.7-9 below), at least two circumferential transition regions (160, as defined in Figures below) each being circumferentially adjacent to the central region (see Fig.9) and spanning from the first radius (as discussed previously) substantially (the circumferential transition regions expand from the first radius to the second radius as shown in Fig.9) to the second radius (as discussed previously) over a circumferential transition length (as shown in Fig.9), and at least two axial transition regions (160, as defined in Figures below) each being axially

adjacent (as shown in Fig.8) to the central region (as discussed previously) and spanning from the first radius (as discussed previously) substantially to the second radius (as discussed previously) over an axial transition length (as shown in Fig.8), the axial transition length being greater than the circumferential transition length (as shown in Figs.7-9) (see Figs.7-9; col.1, lines 11-14; col.2, lines 21-22, 48-53; col.4, lines 65-67; col.5, lines 1-41).

Additionally, Misso et al. shows the ratio of the axial transition length to the overall axial length is more than the ratio of the circumferential transition length to the overall circumferential width (as shown in Figs. 8 and 9; the ratio of axial transition length to overall axial length is suggested to be larger or greater than the ratio of circumferential transition length to the overall circumferential width, as the figures shown below suggest) but less than 250 times the ratio of the circumferential transition length to the overall circumferential width.

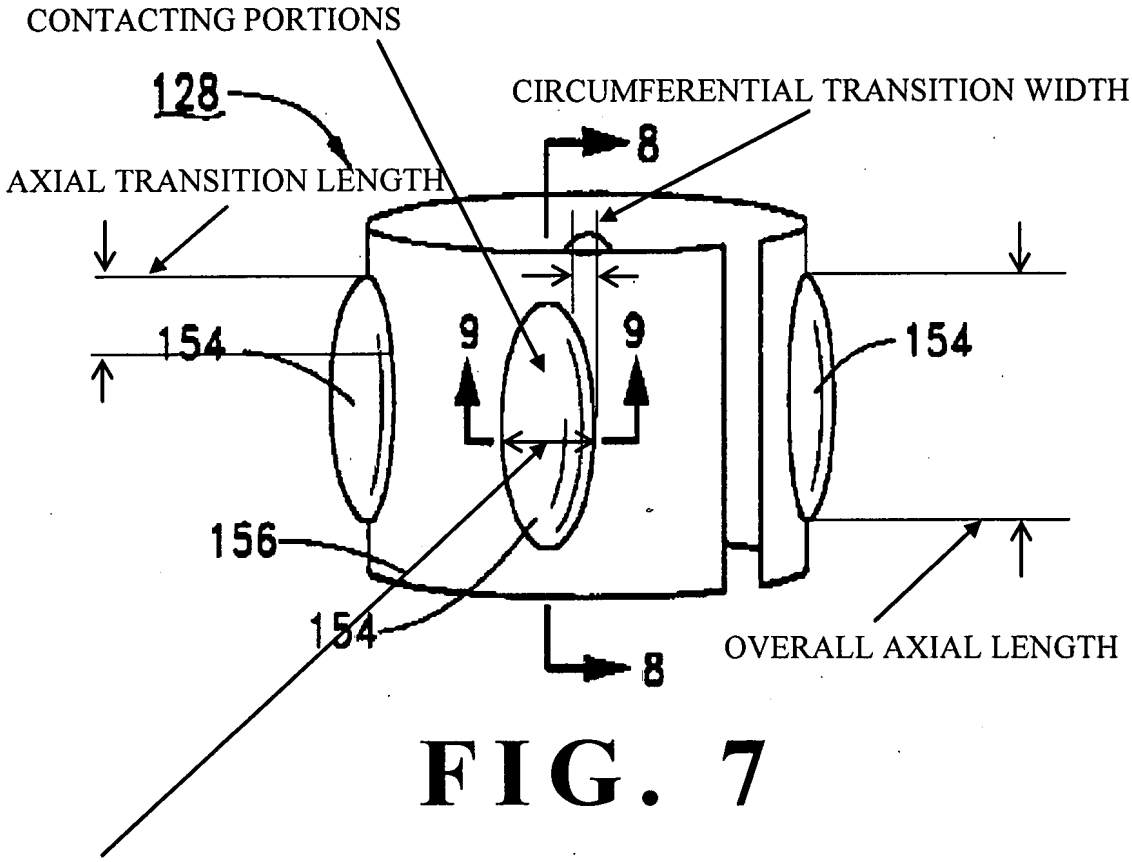
CONTACTING PORTIONS
128
CIRCUMFERENTIAL TRANSITION WIDTH
8
AXIAL TRANSITION LENGTH
154
9
9
154
156
154
8
OVERALL AXIAL LENGTH
OVERALL CIRCUMFERENTIAL WIDTH

FIG. 7

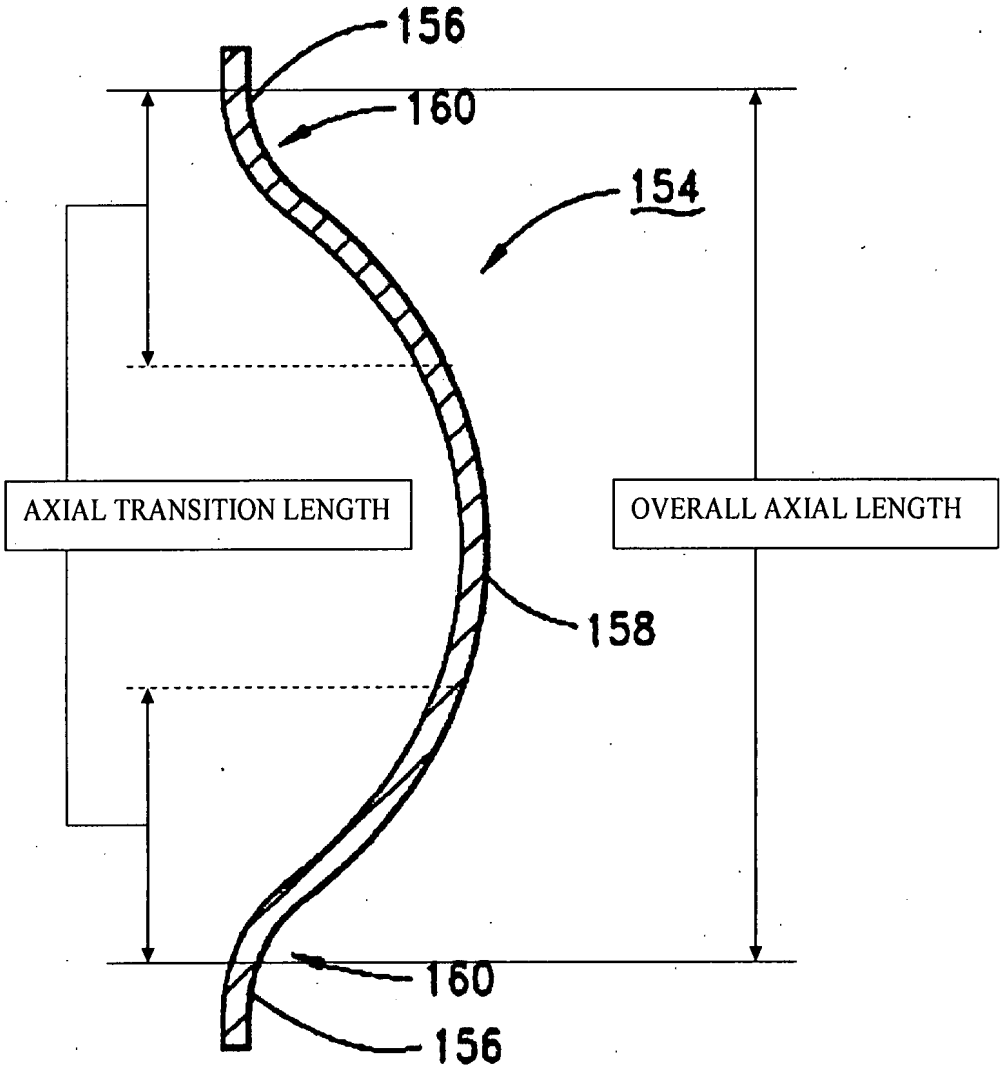
156
160
154
AXIAL TRANSITION LENGTH
OVERALL AXIAL LENGTH
158
160
156

FIG. 8

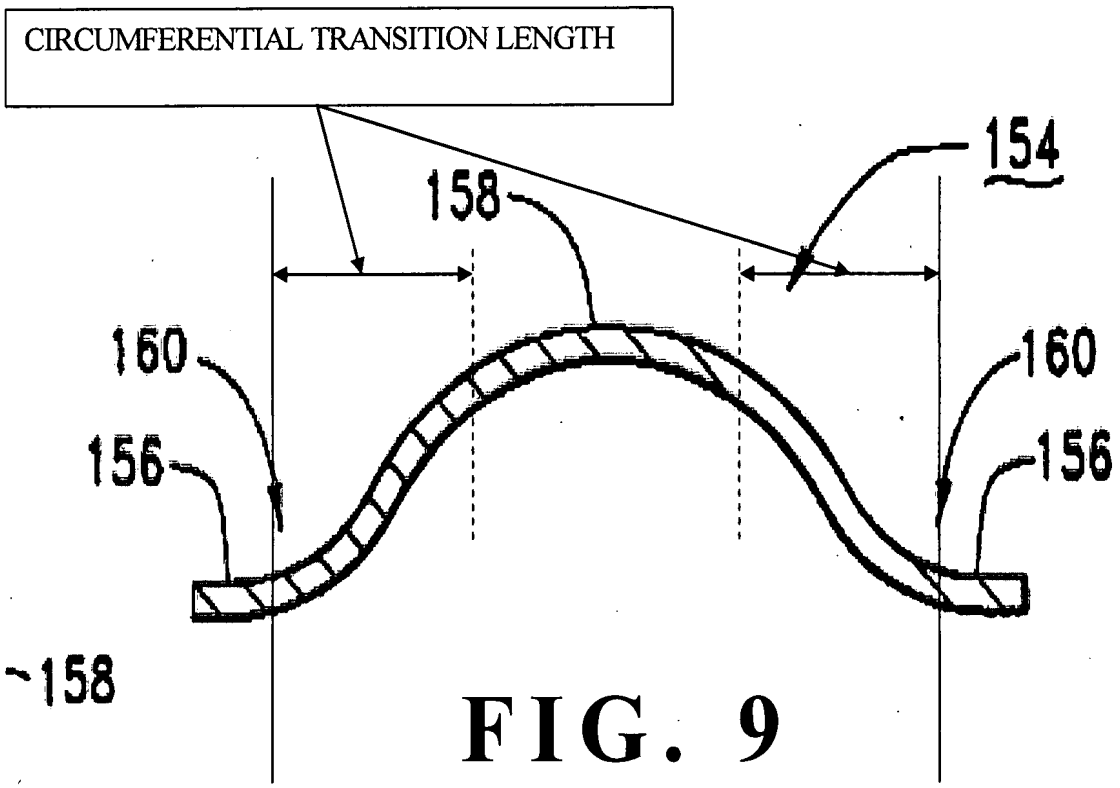

FIG. 9

Re claims 2 and 8: Misso et al. further disclose a thickness of the tolerance ring (as shown in Figs.8 and 9) and wherein the axial transition regions have a profile including at least one curve (see Fig.8) spanning the axial transition length and having a finite radius of curvature (as shown in Fig.8; elements 160 have a finite radius of curvature towards the inside of the tolerance ring, that is less than the first radius of the tolerance ring base) that is less than the first radius but at least 2.5 times the thickness (as shown in Fig.8).

Re claims 3 and 6: Misso et al. further disclose each of the at least two axial transition regions includes a curved profile (see Fig.8; each axial transition region is curved) that spans the axial transition length, the curved profile being convex as viewed from within the tolerance ring and concave as viewed from outside the tolerance ring (as shown in Fig.8; the axial transition regions are curved in a convex form when viewed from inside the tolerance ring and concave in form as viewed from the outside).

Re claims 4 and 7: Misso et al. further disclose the ratio of the circumferential transition length to the overall circumferential width is no more than 0.4 (as interpreted from the claim and the figures, see Fig.9).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blaurock et al. (US 3,838,928) in view of Misso et al. (US 6,333,839). The teachings of Misso et al. have been discussed previously.

Re claim 1: Blaurock et al. disclose a tolerance ring (10) comprising: a substantially cylindrical base portion (as shown in Figs.1 and 7-8; the cylindrical base portion is the sheet bent into a cylinder shape) having a first radius (see Fig.4), and a plurality of

contacting portions (11), each having at least one central region (see Fig.1-6) that reaches a second radius (see Fig.4), at least two circumferential transition regions (as shown in Fig.4 below) each being circumferentially adjacent to the central region (see Fig.4) and spanning from the first radius (see Fig.4) substantially to the second radius (see Fig.4) over a circumferential transition length (see Fig.4), and at least two axial transition regions (see Fig.4) each being axially adjacent (as shown in Fig.4) to the central region and spanning from the first radius substantially to the second radius over an axial transition length (as shown in Fig.4), the axial transition length being greater than the circumferential transition length (as shown in Fig.4) (see Figs.1-6; col.2, lines 31-62).

However, Blaurock et al. fail to disclose or fairly suggest the ratio of the axial transition length to the overall axial length is more than the ratio of the circumferential transition length to the overall circumferential width, but less than 250 times the ratio of the circumferential transition length to the overall circumferential width.

Misso et al. teaches the use of a tolerance ring with contacting portions (154) which include curved profiles with axial transition portions (160) and corresponding circumferential transition regions (as shown in Figs.7-9 included herein). Consequentially, the axial transition length is longer than the circumferential transition length which gives the ratio of the axial transition length to the overall axial length is more than the ratio of the circumferential transition length to the overall circumferential width, but would be less than 250 times the ratio of the circumferential transition length to the overall circumferential width (see Figs.7-9; col.1, lines 11-14; col.2, lines 21-22, 48-53; col.4, lines 65-67; col.5, lines 1-41).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the contacting portions as disclosed by Blaurock et al. with the contacting portions as taught by Misso et al. in order to obtain a tolerance ring which provides a controlled deformation during assembly and that provides a lower installation force required for putting the tolerance ring into the actuator body.

Re claim 2: Blaurock et al. further disclose a thickness (as interpreted from the claim, the spacer ring sheet has a thickness) and where the axial transition regions have a profile (as shown in Fig.5) including at least one curve (as shown in Fig.5) spanning the axial transition length (the curved profile spans the axial length; as discussed previously) and having a finite radius of curvature (inherent in the art) that is less than the first radius but at least 2.5 times the thickness (as shown in Fig.5; the radius of curvature for the "axial transition length" must be less than the "first radius" of the metal sheet plate used to form the spacer ring and its curvature is shown to be at least 2.5 times the thickness of the sheet metal).

Re claim 3: Blaurock et al. further disclose each of the at least two axial transition regions includes a curved profile (see Fig.4-5) that spans the axial transition length (as discussed previously), the curved profile being convex (see Fig.4 above) as viewed from within the tolerance ring and concave as viewed from outside the tolerance ring (see Fig.4 above).

Response to Arguments

5. Applicant's arguments, see page 7, filed August 27, 2007, with respect to claims 2 and 8 have been fully considered and are persuasive. The 35 U.S.C. 112th second para. rejection of claims 2 and 8 has been withdrawn.

6. Applicant's arguments with respect to claims 1 and 5 have been considered but are moot in view of the new ground(s) of rejection. The amended claims 1 and 5, as presented, have changed the scope of the claims 1 and 5 and its dependent claims 2-4 and 6-8.

Conclusion

7. The prior art made of record in PTO-892 Form and not relied upon is considered pertinent to applicant's disclosure.

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carlos E. Garcia whose telephone number is 571-270-1354. The examiner can normally be reached on 8:30 am to 5:00 pm, Monday thru Thursday and 8:30 to 4:00 pm, Fridays. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrea Wellington can be reached on 571-272-4483. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Carlos E. Garcia

11/21/2007

/ William J. Klimowicz /

William J. Klimowicz
Primary Examiner
Art Unit 2627